

REMARKS/ARGUMENTS

Claims 13-16 have been canceled. Claims 1, 3-8, 11 and 12 and new Claims 17-21 are active in the case. Reconsideration is respectfully requested.

The present invention relates to a process of preparing a radiation-curable urethane (meth)acrylate.

Claim Amendment

Claim 1 has been amended in order to introduce the subject matter of page 23, lines 35 to 38 of the specification therein. No new matter has been introduced into the claim by the amendment. Further, the language of the claim is believed to have been clarified by the elimination of “(A)” from the claim. Entry of the amendments is respectfully requested.

Claim Rejection, 35 USC 112, First & Second Paragraph

The issues that have been raised on both grounds of rejection have been rendered moot in view of the cancellation of Claim 13.

Claim Rejection, 35 USC 103

Claims 1, 3-8, 11, 12 and 14-16 stand rejected under 35 USC 103(a) as obvious over Lokai et al, U.S. Patent 6,319,983 in view of Niehaus et al, U.S. Patent 4,380,604. This ground of rejection is respectfully traversed.

Applicants initially state that the main difference between the present invention and the cited and applied prior art is that the urethane (meth)acrylate contain hydroxyalkyl (meth)acrylates as this molecule functions as a reactant with the reaction mixture obtained in step (k) of the present process. Neuhaus et al discloses urethane (meth)acrylates in which

hydroxyalkyl (meth)acrylates are chemically bound to the urethane (meth)acrylates in order to reduce the odor of volatile that are used as reactive diluents.

The Examiner appears to suggest that the Lokai et al patent provides one of skill in the art with the motivation to combine the teachings of the two patents, because Lokai et al discloses coating compositions that comprises a urethane (meth)acrylate and a reactive diluent. However, applicants do not agree with the line of argument advanced by the Examiner. It should first be noted that Lokai et al discloses the use of reactive diluents in coating compositions which are generally copolymerizable monomers such as alkyl esters of (meth)acrylic acid (col 8, lines 22 *et seq*). On the other hand, the Neuhaus et al patent does not disclose such (meth)acrylates as reactive diluents, but rather as a reactant which reacts with components (A) and (B) to form a urethane (meth)acrylate product. Lokai et al provides no motivation whatsoever than to employ (meth)acrylate esters as a reactant (K) as defined in the present claims.

Secondly, Lokai et al teach that the sole purpose of employing the reactive diluent is to reduce the viscosity of the viscosity of (meth)acrylate esters that contain urethane groups. The product obtained can be subjected to radiation induced curing. This teaching is contrary to the present invention where the hydroxyalkyl (meth)acrylate (K) is a reactant which is chemically bound to the urethane (meth)acrylate that is formed, thereby further introducing reactive groups into the urethane material. The difference between a reactive diluent and a reactant in the present situation under consideration is that a reactive diluent is radically polymerized as disclosed in column 8, thereby building up a polymer, whereas the hydroxyalkyl (meth)acrylate (K) as a reactant, as taught in the present invention, is chemically bound to the urethane and then is radically polymerized afterwards, being part of the urethane (meth)acrylate. The amendment made to Claim 1 is helpful in distinguishing the invention over the prior art, because the amount of reactant hydroxyalkyl (meth)acrylate

recited is in amounts considerably smaller than the amounts of the said compound that would be used as a reactive diluent as taught by Lokai et al. Accordingly, in view of the comments above, the rejection of the claims is believed obviated and withdrawal of the rejection is respectfully requested.

Claims 1, 3-8 and 11-16 stand rejected under 35 USC 103(a) as obvious over Lokai et al., U.S. Patent 6,319,983 in view of Niehaus et al., U.S. Patent 4,380,604 and further in view of Paulus et al., U.S. Patent 6,458,991. This ground of rejection is respectfully traversed.

Applicants maintain their position with respect to the Lokai et al and Neuhaus et al patents as stated above, that the combined references do not suggest the invention as claimed.

The relevance of Paulus et al to the present invention is not clear. The patent is directed to the preparation of light esters of acrylic acid and/or methacrylic acid from alcohols which may be alkoxylated. As such, the radiation-curable urethane (meth)acrylate of the present invention is not at all like or similar to the light esters of the reference. Further, the reference contains not relevant disclosure matter at the point of distinction of the present invention over the cited primary references. Withdrawal of the rejection is respectfully requested.

It is believed that the application is in proper condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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